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ABSTRACT

Knowledge, curricula, and goals are implicated in some way in practically every organizational feature of schools. This paper begins with classroom activities as the most microscopic structure of interest to students of schooling processes. It progresses from there to the various forms of structure found in classrooms, to school and community structures. and finally to school system and social system structures. School subjects, evaluation of student performance, relevance of teaching materials and activities, school goals, and standardized testing are among the subjects discussed in these contexts. It is recommended that research strategies seek to discover relationships between specific features of schooling and specific individual and social outcomes. (Author/RLV)

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The Structure of Goals, Knowledge, and Curricula in Schooling

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Each of the other papers in this series treats some particular aspect of school organization---the organization of time; differentiation and grouping; peer influences; activity structures; coordination, control and facilitation of instruction; education production functions. This is one of a smaller number that deals rather with a related subject that bears on practically every aspect of school organization. Knowledge, curricula, and goals are implicated in some way in practically every organizational feature of schools. To treat these relationships it is therefore necessary to examine how knowledge, curricula, and goals are implicated in all the various organizational features of schooling.

It would be impossible in the space of a brief paper to consider systematically the relation of curricular, knowledge, and goals to all aspects of structure and organization in schooling, from the structure of classroom activities lasting only a few minutes, to the structure of entire systems of schooling within whole societies. In preparing the paper I have tried to explore mentally or in my notes as many of these relationships as I could. But I have had rather quickly to judge which relationships were most important and most pertinent to the overall topic, and to concentrate my writing on those few questions where knowledge, curricula, and goals have a peculiarly critical bearing on research into schooling processes. These questions are not always the ones that would appear to me as a curriculum specialist to be most in need of study, but they are in every case questions I think are worth studying from any point of view.

I wish to thank Charles Bidwell for extremely helpful comments on an earlier draft of this paper. It is much better than it otherwise would have been for his efforts. If only I had taken all his advice, I could have held him partially responsible for the results, but I did not, so please don't hold him responsible for the paper's many shortcomings.

The paper begins with classroom activities as the most microscopic structure of interest to students of schooling processes. It progresses from there to the various forms of structure found in classrooms, to school-and-community structures, and finally to school system and social system structures. At each level, another paper in this series treats these structures and their relation to student outcomes. This paper treats only the role played by knowledge, curricula, and goals in these structures and their relation to outcomes.

Activity Structures

The activities students engage in are the immediate source of their learning in school, both the intended learning specified in the explicit goals and the formal curriculum, and much of the unintended learning referred to in such terms as 'the hidden curriculum'. These activities can be as simple as reciting a line of poetry from memory or as intricate as writing poetry. As academic as diagramming sentences or as closely related to daily life as baking a cake. As contrived as a crossword puzzle on American history or as natural as a free-flowing discussion. As individualistic as seatwork or as social as painting a class mural.

The enormous variety of possible activities arises from the unlimited possibilities for structuring any human activity. Human potential for different types, rates, and degrees of response to different stimuli is enormously greater than any other system, animate or not, known to man, unless it be the system of life itself. Activities draw upon this potential to create situations where ordered patterns of behavior may be reliably elicited and displayed.

We must think of educational activity as having at least three levels of structure simultaneously. There is always, of course, the structure of the content or information embedded in the activity. Educational activities are about something. They are referential the way language is, not simply behavior patterns in their own right. We must also recognize the task or performance structure of an activity, what people do or try to do as they participate in it. In education, performance structures are often verbal -- to write the answer to a problem -- and often covert -- to solve the problem in your head and then write the answer. Finally, we must recognize the social structure of the activity. Does the activity call for students to work alone, in competition with one another, or together, in cooperation? Each of these dimensions of order may be designed to achieve a particular educational aim, or one or more of them may be chosen arbitrarily when the designer's interest lies primarily in what she believes the other dimensions of structure will produce. Traditional school activities often ignore social structure, so intent are they on transmitting a given body of content and associated skills. But, on the other hand some progressive practices have been known to emphasize the social aspects of an activity without paying much attention to their content or the specific performances expected of students. Such concentration on one or two levels of structure is certainly defensible in some pedagogical situations, but all three levels always exist whether the activity planner has thought about them or not, and all three can be important in determining the outcomes the activity will produce with students.

The activities teachers use in their classrooms may be ones they have

invented. More usually, the activities have originated in some textbook, teachers' guide, course of study, or kit of curriculum materials. According to some definitions, these activities are the curriculum. Other definitions emphasize the plans made beforehand or the students' experiences during the activity, but all definitions of curriculum would give an important place to the activities that take place in the classroom.

Curriculum matters therefore, are extremely closely related to questions of the structure of activities. The close connection between activities and knowledge or goals is even more obvious. We should therefore expect that curricular considerations would be of central importance in research on activity structures.

Tests may be considered as a special form of activity, one designed to yield information about what students have learned from the other activities. Ususally, the content and task structures of test activities are identical to or very similar to the content and task structures of the learning activities. The math problems on the test are the same problems done in class or in homework, or else they are minor variations on a pattern often encountered earlier. What differs are the social structures of test and other activities. Students are expected to work independently on tests, though in earlier activities they may have been allowed or encouraged to help one another or to get help from parents or siblings at home. The teacher plays a helpful role in learning activities, but stays aloof during tests. Students' performance on learning activities may contribute in a small way to the formation of teacher and classmate's opinions of her competence or potential, but test performance counts officially and

formally as well as informally as an index of competence and ability. Records are kept of test performance and these records become the basis of public actions -- awards, punishments, promotions, retentionsl passing, failing -- that confer honor or disgrace on the student. In fact, since tests are socially and procedurally identical in all subjects and grades, it should be possible to define 'test' in terms of the social structure and performance structure common to tests in all schooling situations. The content structure, of course, and to an extent the performance structure, will differ depending on what is being tested.

With tests we encounter a perplexing dilemma for research on activity structures. Tests are the means by which we normally assess the achievement outcomes of activities. (Standardized tests are still tests even though they are not tied to particular learning activities.) We understand that the closer the content of the test comes to the content of the learning activities, the more likely students are to perform well on that test. The same is true of the task structure. In the extreme case, where the exact content and tasks to be administered on the test have been used in teaching, tests of knowledge are generally invalidated. Such tests show simply that students can do activities they have already done; they do not show that students can do other, related activities on which they have not practiced.

If students have learned something by means of participation in an activity that requires from them very different performances than the test activity, we can assume that the test is measuring at best only a sample of what those students have learned, For example, when standardized tests provide a set of alternative responses for students to choose from, they do

not test the students' ability to formulate such a response, to recall the necessary information and to organize it in the necessary way. They only test the students' ability to judge the adequacy of solutions already formulated. Such a test, therefore, will not in general be able to discriminate between students who were able to formulate correct responses to the question posed in the stem and those who were only able to judge the correct response when it was presented to them. In using such an instrument in research on activity structures, the researcher must be aware of the outcomes it is sensitive to and those it is not.

The difficulty is particularly severe with respect to the social structure of activities. Standardized tests of achivement give no indication whatever of how well a student may be able to facilitate a group's work on a problem. Schools or teachers who design a curriculum that features group problem solving will therefore find that standardized tests do not offer their students an opportunity to display the full set of outcomes of such activities. A test whose social structure called for students to work in small groups to answer questions would more nearly do so. The investigator concerned with the full range of outcomes of different activities is almost certain to find that the stereotyped social patterns of formal testing are a barrier.

Research on the social and performance characteristics of tests in relation to the activities whose outcomes they are designed to measure deserves a high priority if we are to develop the capability for measuring the full range of outcomes of our educational activities. When we understand the test situation itself, we shall be able to design and redesign measures appropriate to different outcomes. My own judgment is that we will not

understand the other activity structures and their effects until we understand those involved in testing. I would therefore place research on the structure of the test situation at the top of my priority list.

There are three other areas of great research interest with respect to activity structures that are closely related to knowledge, curricula, and goals. One is concerned with issues of productivity, a second with issues of equity, and a third with issues of social relevance.

Some activities are more productive of a given type of learning than are others. A major goal of research in curriculum and instruction has traditionally been to discover those activities that are particularly productive for various sorts of learning. Unfortunately, such research has yielded disappointingly few positive results. Only the grossest features of activities have been confirmed by research as affecting achievement. The inclusion of an item of content in a curriculum or instructional program generally enhances students' knowledge of that item. Markedly greater emphasis on a topic also produces greater learning. But these gross features pertain more to the extent to which any sort of learning opportunity has been provided than they do to the specific structure of the learning activities. When activities of equivalent content and emphasis but differing organization are compared, no consistent results are found favoring one or another form of activity structure. (Walker and Schaffarzick, 1974).

Perhaps more careful theoretical analysis of the content, performance, and social structure of activities and more canny design of instruments to measure the full range of their outcomes would begin at last to show positive results from such research. It has been suggested, for example, that

activities may have different results with students of different aptitudes and that this obscures the finding of overall superiority of one activity over another of similar content. If so, we would want to know what it is in the activity structure that produces these differential effects so that they could be controlled by the activity designer. To discover this, it would be necessary to analyze the activity in a theoretically meaningful way. We do not know yet how to do this. I suggest, therefore, that careful empirical, theoretically guided research on the relationship between particular structural features of activities and their detailed outcomes, should be a high priority for the program of research contemplated.

It would be necessary to incorporte variables descriptive of content structure into such research, if only to control for them. Existing taxonomic schemes (Bloom, 1956; Olsen, 1974; Posnerand Strike, 1976) may prove to be of some value in analyzing content and content-related performance structures. It is highly likely that the various levels of structure and outcomes will interact heavily, necessitating either large, carefully designed experiments with multivariate analyses of results or else sensitive, careful, and detailed case studies of sets of activities designed to differ in known ways, and probably a combination of both would be better than either alone.

A given activity will generally be more productive of learning with some students than others, raising questions of equity. Clearly a classroom in which the activities are consistently more productive for one group of students than for another is inequitable if other activities can be found whose benefits are distributed more evenly. Again, current research

confirms only the grossest effects. Students whose native language is other than the language of instruction do not learn as well as students whose native language is also the language of instruction. But thoughtful observers speculate that various social groups may possess distinctive cognitive styles that make conventional school activities less effective for them (Castaneda and Ramirez, 1974). Cole, Gay, Glick, and Sharp (1971) conclude a thorough experimental and ethnographic study of thinking and problem-solving among the Kpelle people Africa with their belief that tests are simply 'specially contrived occasions for the manifestation of cognitive skills' learned as part of 'the kinds of activities that people often engage in and hence ought to be skillful at dealing with.' (pp 216-7) Hence different cultures, subcultures, and even early family environments ought to produce students whose abilities to learn from particular types of school activities differ. The argument is persuasive and the indirect evidence is convincing, but we need direct confirmation and detailed understanding of these relations if we are to determine the sorts of activities that would be most productive for all students, and therefore most equitable. Again, I think careful empirical research guided by apt theoretical analysis of activity structures can give us the firm information we need. The same sorts of research useful for examining the productivity of activities ought to be capable of the extensions necessary to determine differential productivity with different students, the chief additional difficulty being to find characteristics of students to be used as a basis for differentiation in data analysis. I would suggest that this differentiation best be made dynamically, if it proves empirically possible to do so, by exposing students to different types of activities and differentiating on the

bases of their responses to the activities.

Finally, a given activity will have different degrees of relevance to the lives and careers of different students. Some activities may have little relevance to anything important in life outside the schools. I think it is not advisable to attempt to judge the relevance of each activity independently. Rather, an activity's social relevance depends upon the larger patterns of skill and knowledge it is used to build. These larger patterns will be taken up in a later section of the paper. Consideration of this set of issues will therefore be postponed briefly.

Classroom Structures

Activities may be and usually are strung together into larger patterns that may produce more important outcomes than may be achieved by any single activity. The classroom is the arena where these larger patterns are created in American schools. Beyond the classroom, at higher levels of organization including school, school-district, or school-system, patterns are built from courses, subjects curricula, or similar units based on content, time, or other abstract dimensions. The classroom is the highest level of organization at which the full complexities of student activities are considered in educational planning. I think it is significant, in this connection, that a decade of study of variations in school achievement have shown that the most significant variation is <u>within</u> schools, (Jencks and Brown, 1975) and I would suppose that the research on classrooms holds the key to explaining such stable variations in student achievement patterns as we shall be able to explain. I would urge the highest priority during the next decade for research that will clarify what factors within

classrooms are most immediately responsible for schooling effects.

Research on schooling structures within classrooms is not my subject here, however, only those aspects of classrooms on which knowledge curricula, an goals bear importantly. I think there are three such aspects: subjects and subject-matter; pupil evaluation; and the social relevance of classroom structures and activities.

Classrooms teach subjects. In the academic curriculum the subjects taught are closely related to the recognized forms and divisions of knowledge --- the academic disciplines. But this resemblance may be as deceptive as it is revealing even in higher education. And in elementary and secondary schooling the resemblance between what the specialist recognizes as, say science, and what appears in schools may be remote, indeed.

An academic discipline as understood by its practitioners is a body of concepts (i.e. a conceptual structure) by means of which it is possible to deal with certain range and type of subject matter (i.e. substantive structure) and a set of methods, procedures, and criteria for discovery and verification of knowledge in that discipline (i.e. syntactical structures) (Schwab, 1964). This conception of the discipline is built into courses and textbooks used for inducting neophytes into the specialty, that is, in upper level and graduate texts and courses.

Introductory college courses sometimes follow the generally accepted version of the discipline, but they often do not. Applications are introduced to illustrate the uses of the discipline's knowledge. Difficult or esoteric topics are dropped or deemphasized. It is helpful to think of the academic subject as a collection of related disciplines organized for teaching. Most introductory college courses, then, present a subject --

physics, say --- which consists of selections from various disciplines --- high energy physics, fluid mechanics, electricity and magnetism,...---organized to introduce aspiring specialists to these disciplines. A subject is several related disciplines organized for rapid, efficient transmission to neophytes.

Still another version of the knowledge offered by the discipline is created to serve the purpose of general education. We might call this the school subject, to emphasize the role it plays in general education rather than in the preparation of potential new recruits, School subjects are represented primarily in textbooks used in teaching introductory college courses, or secondary school courses. Not uncommonly, school subjects include more than one discipline, just as subjects include several specialties within their discipline. For example, physical science exists as a subject and includes parts of physics, chemistry, astronomy, geology, and other physical science disciplines.

Eventually, a point is reached where the school subject includes only knowledge so widely known that it cannot truthfully be said to be the property of any discipline or subject. It is simply general knowledge that has become associated with, or was once associated with, a certain family of disciplines. This can be found in elementary science books, for example, where topics like animals, plants, the weather, the seasons, and so on appear.

School subjects, then, are by no means simply elementary versions of disciplines and subjects. Knowledge from disciplines enters into them, but other factors enter in as well and the selection of what enters in is not made solely by members of the discipline, nor is it made solely in the

interests of the advancement of knowledge in that discipline. A school subject is a resultant of a wider array of social forces.

Items that arouse the interest of laymen will be emphasized. Over a period of time, history often becomes distorted in these treatments so as to conform to the pedagogical purpose, as when the history of science is represented as a steady march of progress. Material is often selected from academic subjects to serve a moral purpose in the corresponding school subject. The story of Galileo's persecution by the church for his astronomical theories is often used to drive home the value of autonomy for scientific inquiry. The use of academic subject matter to teach moral lessons was once much more common and explicit than it is today. Ruth Miller Elson's Guardians of Tradition shows beautifully how in the 19th century, American schoolbooks were used to teach explicitly an enormous variety of moral, political, economic, and social attitudes, beliefs, and values. Today, such teaching is more muted, but it is by no means absent.

The knowledge included in a school course, then, must not be thought of as a fixed quantity to which all else must be adjusted. On the other hand, the place of an item of knowledge in the discipline cannot be entirely ignored in determining content and activities in any school subject. A science class that presents content however well selected but makes no provision for students to engage in the tasks of inquiry or to experience the role behaviors of science would, one might argue, constitue a defective presentation of the subject.

Subject matter is not infinitely plastic; it makes demands upon the structure of activities and of larger classroom patterns. We do not know in general what these demands are, and it seems likely that this knowledge

will have to be worked out for each specific subject at each level of difficulty. I hold out little promise for the identification of generic characteristics of subject matter-complexity, or degree of hierachical structure, for example-that predict the types of classroom or activity structures that are most effective in teaching the subject. Too much depends upon the specifics of the content.

I would suggest, therefore, that research into the effects of various forms of classroom structure be preceded by an analysis from several appropriate points of view of the content structure of the activities included as well as their performance structure and social structure, and then that alternative versions be designed differing in ways considered pertinent to the particular investigation. With a reasonably complete description in hand, it should be possible to construct indices referring to such matters as content complexity, though my personal judgment is that the relationships involved are to entangled, too interactive for simple main effects of any such variables to explain test results.

Practices in the evaluation of student performance in the classroom are critical features of whatever may be the effective patterns of classroom order-social, intellectual, or otherwise. Formally, student performance is evaluated by tests --- teacher-made tests, commercial tests supplied with the textbook or sold separately, official tests administered by the district or state which may be standardized on a nationwide basis or may be normed on only the local population. In addition to formal measures, teachers' judgments of such pupil characteristics as effort, potential, conduct, attitudes, and the like are often made part of the basis

for judging students' performance in a course.

Only a narrow range of the goals professed for education are measured in such tests -- chiefly academic goals, knowledge of subject matter and facility with critical academic skills such as reading, writing, and arithmetic. Personal growth in any of the many dimensions often stated in official school philosophies are almost never assessed formally. Attitudes toward and abilities to perform in important social roles --- citizen, producer, consumer, parent, spouse, and the like --- are almost never tested. To the extent that students' energies are directed in accoddance with the criteria used in formal evaluation of their performance, this narrowness in formal measures tends to narrow the range of goals effectively pursued in classrooms. Standardized measures are narrowest of all and therefore have the greatest tendency to narrow the range of professed educational goals actually pursued. Competency-based testing is designed, in part, to broaden the range of goals tested for and to make the tests more closely related to the performances that will actually be expected of students outside school. Whether they actually serve this function or whether they simply change the narrow focus of formal testing remains to be seen and is a fit topic for research, though possibly not in this particular program.

A narrow range of measured outcomes makes it more likely that testing will be inequitable. The tasks demanded of students in any test are likely to be more relevant some to social situations that others. A narrow range of tasks ensures that students exposed to those situations where these particular tasks are most relevant will be consistently favored. On the other hadn, the more we try to design tests that are not closely related to any

particular social situation that might be more familiar to some students than to others, the more we risk a press toward irrelevance, toward purely academic, school-related 'knowledge' that has little or no direct application outside school. The only solution to this dilemma lies in a wide range of formal measures whose particular bases may be permitted to counteract one another.

As we will see in a later section, however, broad spectrum measures are least useful for purposes of external control of schools. Also, constructing tests of many of the non-cognitive goals of education is technically beyond our present powers in many instances. One way to broaden the spectrum of measures used to evaluate student performance without encountering these difficulties is to improve and systematize teacher judgment.

Very little is reliably known about how teachers presently proceed in making judgments about pupils' performance in areas not covered by formal measures. We know that their judgments are, to put the matter kindly, highly inferential and unsystematic. But we also know that human judgments can be sensitive and reliable indicators of extremely comples phenomena, things as complex as gymnastic performance, grades of lumber, apples, or other commodities, or the state of health of a patient. These heights of quality in human judgment are attained when raw unaided judgment is disciplined by training and assisted by scales and rating schemes. I do not understand why these techniques have not been applied to the extremely important problem of assessing the more complex outcomes of classroom practices. Teachers around the country could be trained and 'calibrated' to one another or to an external standard in much the same way amateur astronmers are taught by correspondence to judge the brightness of variable stars with

sufficient accuracy to provide scientifically important data. The creation of only one such judging scheme for only one important complex outcome would, I think, show what could be done with this technique and lead to rapid development of a variety of judgmental measures for non-intellective outcomes as well as intellective ones. Judgmental indices might be developed for such non-intellective outcomes as autonomy, self-respect, self-esteem, confidence, integrity, capacity for objective self-evaluation, commitment to important social values, effectiveness in interpersonal relations, capacity for working within and through organizations, capacity for political action, as well as traits of character, beliefs, feelings and creative and appreciative abilities.

Finally, the impact of evaluation procedures and devices depends critically upon how they and their results are used. An intriguing study was done in the 1930's that has not to my knowledge been repeated, indicating that very substantial gains in end-of-course achievement were obtained by the simple expedient of making each test given in the course cover all material previously presented in the course, rather than covering only the material presented since the last test. (Learned and Hawkes, 1940). It is known that small variations in the conditions of administration of a test can significantly affect scores. We need to understand the impact of various classroom uses of tests on what they measure.

Different learnings inevitably have different degrees of applicability for persons in different social situations. When what is presented in a classroom is consistently more useful to some students than others, we

should not be surprised to find greater achievement among those for whom the material is more useful, either presently or in anticipation. Moreover, when the material presented is more closely related to social situations the student has encountered at home or in her neighborhood, we should expect a greater degree of readiness to learn it, even perhaps prior mastery of it. Such inequities have been forcibly called to our attention in recent years, especially where minorities and women are concerned. In an effort to counteract these sources of inequity, materials and activities a are sometimes designed that have little relevance to any social situation. If such items are not altogether useless, they at least favor those students whose powers of generalization are most developed, permitting them to apply the generalized presentation to their particular situation.

Efforts to make classroom work more relevant to students' lives and social situations raise poignant dilemmas. Most students from all social strata aspire during their school years to occupations near the top of the value hierarchy. Do we therefore draw mainly upon these occupations for our pedagogical examples? If so, we offer examples closer to the experience of students from higher status backgrounds. On the other hand, if we offer examples drawn from students' actual social situations what are we doing to their aspirations? Where in all this does the school find its proper role with respect to students, parents, peer groups, other reference groups, and the larger society?

The reformer bent upon showing that the content of school programs is biased can certainly do so from some one of these perspectives, for no matter what choice the school makes, the results will favor some social group, and if some social group is to be favored it will naturally be the

dominant one; that is what dominant means. We can only understand the difficult choices open to us in this troubled area if we comprehend the full range of what Broudy (1970) has aptly called 'the life uses of school learnings'. If we assume that each item learned has only the obvious uses--learning to spell is only useful for writing, learning a language is only useful for reading, speaking, or writing that language, learning a skill is only useful when that skill is used -- then no research is needed. It is a routine matter to note what social roles call for what capabilities and then to determine the array of roles for which a given item of learning is relevant. But if learning to spell also makes a person less ashamed of writing and therefore more willing to do it, if learning a language helps a person understand the limitations of his native language, if learning a skill contributes to a person's sense of competence, then we need to know how different learnings contribute to competence in different life situations. Only when we know how the important content of the various subjects may be used will be able to judge the extent to which they may be of differential value to persons with different social origins, circumstances, or aspirations. If we wish to take these questions beyond polemic, we must have knowledge of the potential and actual life uses of school learnings.

If you want a large number of students to know something, the single most effective thing you can do, apparently, is simply to give them an opportunity to learn it (Husen, 1967). I will venture the hypothesis, as yet unsupported by data directly testing it, that the next most effective thing would be to make something important to the student contingent upon attainment of the knowledge, i.e., to make it an operational goal for the

student. In many cases students are simply not aware that their performance falls short of our goals for them or, more important, of what is or will be expected of them in qualifying for or accomplishing something important to them. Dornbush (1974) found that high school students in San Francisco who were barely passing schoolwork with performance that at best familiarized them with the academic subjects but did not give them the mastery they would need for further study in college, nevertheless aspired to attend college and were apparently not aware that their high school performance would be an impediment. Ogbu (1974) found that many youngsters in Stockton, California, who were only marginally passing their academic work in school believed they already knew it, apparently because they had studied it before even though unsuccessfully by the teacher's and school's standards. Apparently the students' goals had been met by an inadequate performance and nobody or nothing in the school managed to make the school's higher standards truly effective in guiding their judgments of their performance.

It is likely that many students persist in unsatisfactory performance because they think, for any of a number of reasons, that they cannot do better. In their own minds they are helpless to improve scholastically. Unless the school forcefully demonstrates to each student that adequate achievement is possible, belief in their own inability to achieve, combined with the school's willingness to provide the things most important to the student anyway -- promotion to the next grade, passing marks, a high school diploma -- work to confirm the student's impression that he or she is doing well enough and as well as he or she can. Adamnant insistence that students accomplish what they truly cannot or firmly believe they

cannot, of course, could have serious negative consequences. But a complaisant attitude toward mastery conveyed by the teacher or school explicitly or in operating procedures is certain to depress achievement for students for whom the goal of mastery of an item has not been internalized as a personal goal.

The study of how students 'read' the school's goals and how they form their own in response and the effect of both on student outcomes (a broad range of achievement variables and other outcomes of interest) strikes me as of the highest urgency and priority. First, objective, valid means of detecting or measuring students' actual goals for their own performance must be found. Since students who do not share the school's goals for them are likely to be failing or marginal students and virtually certain to exhibit one or another variety of maladaptive or disruptive behavior (by school standards, again) they are likely to have a number of characteristics that set them off from their fellows in addition to those associated with goals. Both Dornbush (1974) and Ogbu (1974) seem to have made good starts in this direction, Dornbush by asking students how well they believed they were doing and comparing that with records of achievement, and Ogbu by interview ethnographic methods.

When we are able to detect these goal maladies and distinguish them from other causes of poor performance with which they are commonly associated, the next logical step would be to carry out experiments in which attempts of various types are made to secure acceptance and internalization by the student of school goals in some subject, and consequences observed. Humanity as well as good scientific procedure demands that we insure that these goals truly are important for the student before convincing him that

they are. In part, we can satisfy ourselves on this point by choosing subjects like reading and arithmetic which enter into such a wide variety of out-of-school activities for everyone that their value can hardly be questioned. But we must also check with individuals and groups important to the student. If parents and family judge the goals to be important, if peer group members do (or, more realistically, persons now mature who were once like peers), if figures important in the student's neighborhood and community do, then we can be confident that we are not imposing a harmful goal. Ensuring that the student is truly able to accomplish the goal is impossible, but we can approach certainty by checking the students' performance in other areas of life outside school. Unless the student shows marked performance decrements in activities outside school --- peer group and family activities, chiefly, but also simply living and getting around in his environment --- we can assume ability to accomplish school goals. Even if the student does exhibit difficulties outside school that seem traceable to low mental ability, we need only set the goals lower initially and gradually see how far they can be raised.

The dominant psychological traditions of research on motivation emphasizes interpersonal influence. I would encourage future research to concentrate rather on classroom and school practices and policies. Teachers are often urged to establish a personal relationship with each student, in part, at least, in hopes that the student will therefore pay more attention to what the teacher says and does. In the early grades this may be a valuable, even a necessary technique. But in upper elementary and secondary school, evidence indicates that impersonal factors are more important than teacher personality or other personal characteristics of the

teacher, even in influencing student attitudes. For example, Kounin (1970) found to his surprise that personal characteristics of the teacher were less important as determinants of student attitudes toward a subject and of behavior in the classroom (particularly engagement) than impersonal, task-related characteristics. Musgrove and Taylor (1969) found that English school children rated teachers' methods of teaching (Sample item: "A good teacher encourages you to work hard at school") higher than teachers' personalities or their methods of discipline in the students' images of the ideal teacher. Such indications should encourage investigators to examine teaching techniques and practices in addition to (I would even say in preference to) the more affectively toned and interpersonal variables.

School and School-System Structures

Schools' influence on student outcomes is, for the most part, mediated by classrooms and allocate critical resources --- time, teaching/learning materials, facilities --- among classrooms and teachers. Schools or school districts school districts sometimes set overal l student performance criteria in the form of external examinations or graduation requirements. Teachers' performance is also evaluated at school or district level. Innovations which affect more than one classroom must be approved at school or district levels. Often innovations originate here, though often, too, schools lack the resources and mechanisms to implement innovations effectively, lack provision for teacher inservice education, and lack time and expertise for determining local needs and planning innovations. Schools mediate between the community and the classroom. Conflicts among teachers and departments are adjudicated at the school level. Since each of these

activities carried on at the school level influences classrooms in potentially powerful though indirect effects on achievement. In addition to important ways, schools have potentially these indirect effects, schools may also influence students directly through the climate established in the institution, its institutional press, and the priorities established among activities and goals at the school level.

Although the most recent round of large-scale survey research has found much greater variation in achievement within schools than between them, (Jencks and Brown,1975) this is not, in my judgment, reason to assume that schools as institutions are unimportant influences on students,--the research is not at all definitive. But it does suggest that research on classrooms is more likely yield factors that can be directly related to measured achievement. I strongly suspect that if the outcomes measured were expanded, school effects would also be found, though they would generally be smaller than classroom effects.

In my judgment, two problem areas are important in connection with knowledge, curricula, and goals at the school and district level: the prevailing subject organization of school curricula and its effects, and the role of the school in mediating among different goals and priorities of different groups.

Various reformers have urged that we eliminate subjects. They regret the artificial divisions subjects seem to generate in the unbroken web of human knowledge. Alfred North Whitehead put this complaint most eloquently:

> There is only one subject matter for education, and that is Life in all its manifestations. Instead of this single unity, we offer children --- Algebra, from which nothing follows; Geometry, from which nothing follows; Science, from which nothing follows; History from which nothing follows; a Couple of languages, never mastered; and lastly, most dreary of all,

> Literature,....Can such a list be said to represent Life, as it is known in the midst of the living of it? The best that can be said of it is, that it is a rapid table of contents which a deity might run over in his mind while he was thinking of creating a world, and had not yet determined how to put it together. (Whitehead, 1929, pp 10-11)

They point out that the organization of knowledge and skill that is best from a logical point of view, from the point of view of the scholar in the disciplines or the advanced practitioner of some occupation, may not be best also for the neophyte, for the requirements of teaching, especially of general as contrasted with specialized education. It might be better, some reformers have argued, to begin with the child's present needs and interests and gradually build toward the logical structure of subjects. They have devised curricula that are organized around such concepts as "transportation","the city", "other lands and peoples" with various bits and pieces of subjects brought in as needed in the understanding of these familiar and important features of the world outside the school.

Still others have critized a subject organization as inherently conservative and almost certainly out-dated. They point out that the society, social issues and problems, the worlds of work and of daily life are changing at a fantastic rate, while subjects, by their very nature look to the unchanging or slowly changing past. Just compare what is being written and read today with what appears in English courses, or today's mathematics of computers and statistics with what appears in math courses and you will see the inevitable lag between subjects and life.

It has been argued that subjects are of little direct use in daily life except to those few students who go on to become academics. The effort to sustain other children's interest in this material is an unnecessary burden

on teachers and schools.

It is difficult, also, to accomodate the other aims of education within the molds created by academic subjects. Moral and value questions can only be treated in a very peculiar academic fashion. The transmission of cultural and moral values and norms is made unnecessarily difficult by the academic organization and emphasis of school curricula. The subjects place too much reliance on purely cognitive, purely symbolic matters. They only permit a sterile, pale, weak contact with the academic's reconstructions of reality.

It has even been argued that the school subjects are not well suited to developing intellectual abilities. All we give students in academic subjects is factual knowledge. Subject matter emphasis encourages mental passivity, prevents transfer of knowledge, and fails to encourage active use of what is acquired. The traditional teaching techniques such a curriculum favors are didactic, expository, prescriptive, and deductive --- unsuited to teaching students how to think.

Scholars have undermined the justifications for the subject curriculum to a considerable degree. Piaget's work calls into question whether the workings of children's minds permits them to assimilate the concepts of the disciplines. Philosophers have questioned the assumptions about the humand mind and about human knowing embodied in justifications of the subject . Polanyi (1967), for example, argues that public, propositional knowledge of the sort considered by philosophers rests on an unarticulated basis of tacit, personal knowledge, and that we neglect this more basic form of human knowing at our peril. Students of intellectual history point out that the current set of academic disciplines did not

exist a century ago, that each discipline has a unique and checkered history, that the development of these disciplines may be a part of a peculiar historical moment and may serve purposes of which their members are only dimly aware. It may be that science serves primarily the function of inducing acceptance of a worldview and metaphysics congenial to an industrical and technological society, just as the teaching of theology once served to strengthen European theocracies. Anthropologists stress the formal comparability of the knowledge represented in many cultural systems, most of which have nothing comparable to disciplines.

And yet, in spite of attacks from all sides sustained for more than a century, the subject curriculum survives in colleges, universities, and secondary school, and does not do too badly in elementary schools. Only in pre-school and primary programs is it substantially challenged by an alternative form of curricular organization. How has it managed to survive? Partly because the case for it has remained convincing to so many. But mainly, I think, because it is functional. Subjects perform so many important functions in so many far-flung corners of a diverse and ill-coordinated enterprise that they provide almost the only integration and continuity the enterprise can exhibit.

Consider the important role played by school subjects in the following aspects of the operation of schools:

-Within schools, time and space are allocated to subjects; students are assigned to study certain subjects in certain places at certain times.

-Facitlities, such as laboratories, gymnasia, art rooms, etc., are assigned by subject; so are supplies and materials, including textbooks.

-Frequently, teachers are organized in departments based on subject matter.

-Teachers are hired and assigned to teach on the basis of their subject matter qualifications.

-Decisions to change curriculum or teaching methods are often made within subjects, as when the math teachers decide to change their text adoption.

-Students' performance is evaluated on a subject-by-subject basis.

-All course offerings must fit within a department in secondary schools and colleges; thus, additions to the curriculum are made within a frame set by subjects.

-Students form attitudes toward subjects; on the basis of these attitudes (in part) they judge their fitness for further study and for jobs related to that subject.

-For many teachers, the primary attraction of the job lies in the opportunity it gives them to deal with an interesting subject.

Outside the school,

-Teachers are prepared and certified in a subject.

-Textbooks are written and produced in subjects.

-Graduation requirements, college entrance requirements and the like are expressed in terms of the completion of study in certain subjects.

-Teachers are organized in part by subject; many professional journals for teachers are published by subject matter associations.

Any one of these tasks could probably be accomplished without reference to any school subject. But is there another single basis for accomplishing all of them? If there should be one that I cannot imagine, would it achieve the acceptance of teacher educators, textbook publishers, university entrance examining committees, school districts, and the other agencies whose interlocking efforts are needed to make a mass system of education operate?

In physical science, when a system is held in a particular state by the action of more forces than are needed to keep it there, the system is said to be overdetermined. Subject organization of curricula is an overdetermined system. As much as I sympathize with many of the complaints about subject organization, I think the attempt to undermine it is misplaced. Effort would be better directed toward making the system more flexible so that features of the curriculum not really mandated by subject organization but justified that way could be replaced.

An important chapter in the history of American curriculum reform is the story of repeated attempts to displace the subject curriculum with other, more flexible schemes. These attempts have been successful only in the kindergarten, pre-school, and primary grades. Temporary successes have been scored in certain institutions at other levels, but these have rarely spread to a significant proportion of public schools, and have frequently not lasted a generation.

Experimental comparisons between the more prominent schemes and traditional instruction have been carried out, but inconclusively. The chief obstacle to a useful comparison is absence of agreement on a yardstick of results. If subject-matter achievement is takne as the yearstick, and if data are collected and treated in such as way as to make a sensitive comparison, subject-matter based curricula win. (Walker and Schaffarzick, 1974). If, on the other hand, measures more directly related to what is taught and studied in the new program are used, the challenger wins. When both are used, each wins on its own turf and laymen are left to decide which results are most important -- they almost always opt for subject matter achievement. An additional problem occurs when we attempt to compare

programs pursuing a relatively narrow range of goals with programs pursuing a broader range. It would be unreasonable to expect as much advance on each of a large set of goals as on a much smaller set. So any comparison on a few measures favors a narrowly focused program pursuing a few related goals --- most subject curricula may be so charcterized -- while any comparison on a large array of measures must be very well designed if it is to detect relatively small gains in time intervals of a year or less.

For all these reasons, I would be skeptical of the value of research into alternatives to the subject curriculum. I would recommend such a study only if:

a. the new basis of organization could be shown capable of performing all or most of the critical functions performed by subjects, not just one or two of them.

b. the goals pursued by the new program overlapped substantially with those pursued by traditional subject-centered programs, so that an interpretable comparison of outcomes could be made.

c. the alternative basis of organization already has so much support that its proponents will put it into practice anyway, but would otherwise not be able or interested in mounting research to compare effects with subject curricula.

Even under these conditions, I would suspect that such research might be of little practical value, because I simply cannot imagine the political situation that supports the subject curriculum being upset by research results of any but the most startling kind.

The difficulties involved in assessing the effects of different curare highlighted if we contrast present academic and vocational curricula. ricula. These two programs involve students in substantially different

courses and activities over several years. If curricular differences make a difference, surely it should show up here. The evidence that exists tends to show that the academic curriculum produces superior tested achievement. In addition, chances of a student's getting a college education are much greater in the academic curriculum. (Shaycoft, 1973) Even when statistical corrections are applied to correct for different academic ability or socio-economic status of entering students, academic curricula still produce more students who enter and complete college. Furthermore, studies indicate that graduates of vocational programs do worse than graduates of academic curricula in the job market. Very few vocational students get jobs of the sort they train for; few even enter the same industry.

And yet the question of the relative benefits of the two curricula are not settled among investigators and seem hardly to be raised among policy-makers. Until experimental comparisons with random assignment of students to curricula and believable outcome measures are conducted, we cannot expect the intellectual issue to be resolved. (I doubt whether it would be resolved even then.) And the practical issue seems to be more a matter of power than of ideas. Aside from the trend toward enrollment of a greater proportion of young people in school, the most marked and longest lasting trend in the American secondary school has been the trend toward more practical or vocational offerings.

Practical subjects are conglomerations of the knowledge and skill needed to practice some art, craft, occupation, or profession. Accounting, for example, is a moderately complex skill required in all businesses. It is a relatively unified system of skills. Home economics, on the other hand, is a loose collection of skills and knowledge helpful in managing a

household and family. Whatever unity practical subjects have comes not from the intellectual structure of an academic discipline -- although in such advanced practical subjects as engineering, this is nearly true -- but from the interrelated demands of the practice of the art, craft, occupation, or profession.

These subjects constitute the closest approximation yet devised to an alternative to subject matter as a curricular organizing principle. Just as a academic subject takes knowledge from a cluster of related disciplines and shapes it for general education, so a practical subject takes knowledge and skill from a cluster of a related arts, crafts, occupations, or professions. I think we must regard vocational curricula as general education programs, ones that introduce students not to an occupation alone, but to a range of important social roles, including job-related ones.

One might even imagine constructing an entire curriculum of practical subjects. Suppose,for example, we glanced at a master list of occupations and tried to construct 10 or fewer 'subjects' that pretty well covered the 'knowledge' required for these, and constructed a series of general education 'courses' around these (recalling that we are going to craftily design these courses so as to maximize student engagement). Material in home economics, home-and-family living, personal economics, and similar courses would introduce students to important social roles other than occupational roles.

While I think it is futile to invest much in the search for alternatives to subjects as the organizing principle of schools, I think many of the criticisms of subject organization are justified and can and should be

ameliorated. This can be done by reorganizing the activities within courses in the various subjects and also by observing the form of subject organization while in fact organizing courses on bases other than academic subjects. Both processes have been in operation for some time, and may, in fact, represent evolutionory trends toward other bases of curricular organization.

The bland, idealistic, and all-encompassing statements of official aims and philosophy found in every school and district imply a consensus on goals and priorities among them that simply does not square with what facts we know. All surveys of Americans' goals for public education reveal a bewildering variety. Downey (1960) synthesized these into four major groups: intellectual, social, personal, and productive. If social and productive are combined into a single category we have the traditional triad, student, knowledge, and society, recognized as determinants of schooling. Much of the politics of school reform can be interpreted as struggles on behalf of those who place these three major functions in different priority. The contribution of schooling to each of these areas must satisfy those among the public who hold this function in high esteem or face, at the least, loss of support from these persons. Schoolc, in other words, have to cover three very large bases.

Schools must therefore function in a social environment that expects several quire different sorts of accomplishments, and shifts its emphasis among these different goals unpredictably as public opinion, socially significant events or trends in the society, or political realignments change the power and influence of groups advocating different priorities. To

function in such an environment is a constant test of any public institution's stability and responsiveness. How can schools function when so many conflicting, fluctuating demands impinge directly upon teachers and administrators? How can school staffs reach agreement on institutional goals if the community is divided? How can teachers remain firm in insisting that students achieve officially approved goals when everybody knows that priorities may change at any moment with a new board of education, a change of administration, or even with events of the day? How can we expect students to take their insistence seriously when others whom they respect consider these goals unimportant?

Presumably, when all the important influences on a youngster are of one voice on the matter of what's important, the youngster is more likely to accept this verdict and behave a-ccordingly. When the important influences urge different goals or standards for the youngster's behavior, the likelihood of his encountering some sort of problem is increased. If the youngster cleaves to one of the contending parties, he must contend with the hostile efforts of the others. If he attempts some sort of accomodation, he may fail to attain it and suffer various personal and social ill effects. If he does reach a satisfactory accodmodation, he may thereby make an important contribution to the society as well as to his own well-being. It is not entirely clear which situation is the more difficult for a youngster to face or which has, on balance, the more positive outcomes. A monolithic social environment has its drawbacks and presents serious problems to anyone who must cope with it. Nevertheless, we can ask the objective question: what are the consequences of placing a youngster in a situation of consensus among important reference groups as contrasted with

placing him in a situation hwere these reference groups disagree?

I would not expect to find a clear or useful answer to the question put in this bald form. Too much depends upon the details of the situation, and upon the context, the youngster's early upbringing, the family and neighborhood situation, the cultural traditions extant. The consensus to which an Amish youngster is exposed cannot be lightly compared to the consensus in a nearby rural, protestant village, nor to that of an isolated Appalachian community or a Navajo reservation. Furthermore, what we may perceive as dissensus, may appear to a youngster as options or alternatives, offering a degree of liberation or as sources of tension and conflict -- to name only two of the simplest ways the situation could be construed.

Because of these situations, I would expect particularistic methods, case study, or ethnographic procedures to hold the greatest promise of progress on this problem. The central problems, it seems to me, are two: how does the presence of competing ideals or norms among important reference groups influence the students' allocations of energy, attention, and time and, subsequently therefore, outcomes; and what are the personal and social consequences of having to cope with this dissensus? In both cases, other areas of life where the youngster does not have to cope with competing ideals or standards could be used as controls. In addition, communities and cultures could be studied comparatively in this respect. Since it is unlikely that knowledge gained from this sort of study would enable us to remove conflict where is exists, if that should prove desirable, or introduce it where it does not, emphasis should be placed on studying how the shcool and community could most constructively cope with both situations.

Most schools show a fairly well-defined status hierarchy among their

various purposes. A secondary school in a wealthy suburban community emphasizes college entrance as its primary goal. Winners of scholarship contests are posted. Administration, teachers, and school board members celebrate if their school gets more winners than neighboring schools or more than they got last year. In another school in a rural area, the agricultural program may be the community's pride and joy. In many communities sports and related extracurricular activities have high status and receive a large share of the school's and community's resources. Generally speaking, a school's status hierarchy will be complex, with many different purposes represented in various ways at various places in the hierarchy.

To what extent and in what ways do discrepancies between the purposes formally embodied in the curriculum and stated goals of a school and the purposes implicitly embodied in the school's status hierarchy and informal operations affect achievement? This question has received considerable attention in recent years under the label 'hidden curriculum'. Beginning with Dreeben (1968), a number of investigators have pointed to the unquestionable fact that schools exhibit regularities in the behavior of students and teachers which are purposeful and functional but which are not formally acknowledged as part of the official curriculum. For example, students in elementary schools must be helped to learn such norms as independence, achievement, and universalism. The practices of elementary schools can be shown to exemplify and reinforce these norms, even though they appear in no study guide or curriculum statement. Inkeles and Smith (1974) suggest that the hidden curriculum rather than what is formally taught in schools may be the major factor responsible for the school's contribution to modernization

in developing countries. Form may be more important than substance in school programs for both academic learning and for such important non-intellective outcomes as moral commitment (Bidwell, 1973).

Quite obviously, this line of thought has important implications for research into the consequences of school organization. But since it is treated more centrally in other papers in this series, I will simply give it this brief mention in this paper. I would caution only against a tendency to see the formal curriculum and the hidden curriculum as mutually exclusive and exhaustive categories. The argument offered by Inkeles and Smith, for example, is simply that it is implausible to suppose that reading, writing, arithmetic and the other contents of the formal curriculum produce modernization they observed, so therefore the hidden curriculum must be responsible. This overlooks the possibility that it may have been due to less obvious concomitant outcomes of the formal curriculum. Mastery of arithmetic, for example, may give a student confidence that the world is more comprehensible than he and his family may have heretofore supposed. Learning to read may give a person a greater sense of personal efficacy in other areas of life. Assignment of causation to the hidden curriculum should involve positive evidence, not simply the 'elimination' of the formal curriculum as a cause.

Schooling Systems and their Societies

Schooling and its effects cannot be understood in isolation from the larger social processes to which schooling contributes and in which it plays a part. No form of schooling is good in itself and no set of effects of school may be considered good in all situations and under all circumstances.

Rather, both are good because of their fitness to a way of life, a mode of human existence, a condition of human society. Such, at least, is the consensus of educational philosophers since Plato.

Three problems seem most important at this largest scale of thought: What is the nature and magnitude of schooling's contribution to socail welfare? What role does schooling play in the production, dissemination and use of knowledge in the society and the world? How may schooling systems be managed, governed or controlled by the societies they serve?

Conventional wisom portrays schooling as an agent of social mobility. This view is supported by the findings of major sociological studies of the American occupational and social structure such as Blau and Duncan's (1967) classic study. Recent students seem more cautious. Sewell and Hauser (1976) sound the typical note of pessimism.

> It is apparent form our analysis that the path to high occupational status is through higher education. Higher status families appear to make most use of this route, perhaps by providing the genes and the stimulating environment that result in superior cognitive abilities and schcol performance. (pp. 23-4)

They also note that their results showed "a modest amount of direct status inheritance".

In part, the problem here is whether the glass is half-full or half--empty. Just how much contribution to social mobility should the school be expected to make? If we expect schooling to bring about such mobility that the child's occupation and status bear no relation whatever to the parents', then schooling is failing us. If we are satisfied when schools

permit the most talented quarter, say, of children of lower status parents to advance beyond their parents' station in life, we may be reasonably content with schooling's contribution to social mobility.

But there are more serious grounds for disagreement among specialists on schoolin's contribution to social welfare. There is the question of the school's role in maintaining the hierarchical structure of status and power, what is called in European literature, social reproduction. If schools did not confer such disparate status on individuals, and make the disparity seem legitimate, the argument goes, a hierarchical social and occupational structure would have greater difficulty perpetuating itself. The extreme version of this argument --- allocation theory --- maintains that schooling's impact on society comes predominantly from its role in assigning adult success to students on the basis of the duration and type of their schooling. Meyer (1977) extends the line of argument even further, to something he calls legitimation theory, which maintains that the system of schooling 'defines certain types of knowledge as extant and as authoritative', 'defines categories or persons who are to be treated as possessing these bodies of knowledge and forms of authority', and 'validates both elites and citizens'. (p. 66) In short, for legitimation theorists, what is taught in schools is essentially irrelevant --- it might as well be pushpin as poetry. What counts is not the substantive knowledge and skill conveyed but rather the legitimacy of the status conferred on the graduate.

This issue seems so momentous that we are inclined to think we must resolve it before we can justify attending to any of the more detailed problems posed earlier. Egalitarians may well ask why, if schooling

contributes little or nothing to social mobility, worry so much about whether schools are productive and efficient? Ultimate questions are deceptive in this way. If we allowed ourselves to indulge this attitude wholheartedly, we would drop everything until the ultimate meaning of life had been determined.

I doubt whether at the present time we have the investigative capability to resolve these disputes; I doubt whether they are resolvable by facts of any kind; I therefore do not think research into this issue should have a high priority. It seems to me extremely likely thateducation's independent contribution to any one overall society-wide characteristic --- GNP , social mobility, consumer price index, some hypothetical index of political well-being, or a global index of quality of life--is going to be small compared to all other factors also influencing the index. To search for these small increments with current techniques is roughly like seeking the structure of DNA with a hand lens.

In any event, what matters, or should matter, is the relative size of the contribution of education compared to other collective actions we might take. It is misleading to compare education's effect to the effect of family background, for example, if what we want to know is how we can intervene in the social situation to improve it. To answer this question we should compare education to other possible interventions. Obviously, comparing two miniscule quantities is technically even more difficult than detecting either.

Furthermore, the size of education's net influence on some society-wide index is a misleading measure of its importance to the society. In many cases education presses on both sides of the scale. For example,

the same education that may make workers more productive may also make them more aware of their political rights and more knowledgeable in pursuing them, potentially leading to settlements with employers that tend to reduce net productivity. Higher levels of education may tend to increase overt conflict in a society if parties whose interests conflict are enabled to see their interests more clearly and fight for them more effectively. Large scale social surveys oversimplify. Ensuing academic debates intimidate policy-makers and leave them with the impression that education has no important effect -- how could it if we can't find hard evidence?

The nature and quality of the arguments already advanced in the debate leave serious doubt in my mind whether the disputants or their audiences will be persuaded by evidence of any kind. Defenders of schooling such as Hyman, et al. (1975) show themselves willing to accept trivia as stand-ins for 'the enduring effects of education's Allocationists and legitimation theorists such as Meyer (1977) traffic in specious contrasts between expertise and the credential that certifies it, acting as if it makes no difference in society whether doctors can heal or chemists manipulate compounds if only their sheepskins say the right thing. Research results will not be firm enough to withstand the pressures of politics here.

If any research is justifiable in this domain at this time, it is close and careful tracings of the relation between demands of specific life roles and particular school learnings. We need an idea of the many ways in which school learnings can enter into people's lives out of school so that we can determine the extent to which they in fact do so enter and prove useful or not. We also need to know what demands for knowledge, skill, and the like people's lives are making on them so that we can determine the

gap between what school provides and what people need. The net effect of all these contributions on global indices is less important.

We should expect schooling to play its most substantial role in that subsystem of modern societies responsible for producing, distributin and using formal or organized knowledge, what is sometimes called the KPUD (knowledge production, utilization, and dissemination) system, or 'the knowledge industry'. Indeed, investigators (Machlup, 1962, for example) do find education making a key contribution to the production and distribution of knowledge. We do not know, however, whether the contribution is as great as it might be if other institutional arrangements than schools were employed for this purpose, or whether the system's results are on balance good for the society, or whether its benefits are distributed as equitably as they might be. Some of the more important questions being raised in connection with the school's contribution to knowledge are really questions about knowledge more than schooling; others concentrate more on the school's role.

Knowledge is not directly observable; we infer it from a person's actions. But inferences depend upon assumptions, usually unstated, often unconscious, on the part of the observer. Thus the skeptic always has room for doubt whether anyone knows anything. A thoroughgoing sociological skepticism doubts whether knowledge is ever more than a status conferred on what some people are able to do to make it seem more worthy and difficult than what others can do. Thus the scholar's ability to translate a Sanskrit manuscript is called knowledge, while the peasant's ability to eke out a living on meagre resources is not. Linguists maintain that all languages

are essentially equal in difficulty or complexity. Sociological and anthropological investigations of so-called 'primitive' cultures and 'backward' subcultures seem always to return findings of surprising complexity, beauty, and nobility in people's lives together. Perhaps, then, the sociological skeptic reasons, all cultures, all societies, all human groups exhibit behavior that is as intricately patterned, as well-suited to its authors' situation in life, as worthy of study as any others'. And why not dignify these behavior patterns with the term 'knowledge', even if it does not correspond to our possibly ethnocentric definitions?

Within a single complex society in a modern industrialized nation we can find many subcultures and intact social groups who seem to stand in the same relation to the official, mainstream of western culture as other cultures stand to it. Why not extend the reasoning to them? Perhaps members of all social classes possess their own brands of'knowledge'. If so, the knowledge recognized as such and purveyed through schools is only a selection, and a biased selection, of the total spectrum of knowledge extant in the entire society.

The central question here is <u>not</u>, as it is usually stated, 'how knowledge is socially defined', but rather the relative value of different forms of knowledge claimed by different social groups. The prevailing view in Western societies is, of course, that the formal disciplines of modern science and scholarship represent the epitome of human knowledge for all persons regardless of social origin or social group membership. Is it really, or is this judgment simply ethnocentric? How could we ever tell? We can tell what values people do in fact put on different bodies of knowledge, using market values or other traditionally accepted indicators of general

social value and esteem. But this will always show the values of the dominant groups in that society, and the charge being made is that these dominant groups overvalue the knowledge they claim and devalue the knowledge claimed by other groups. What would seem to be needed to resolve the question is a determination of the objective potential value of various competing types and versions of knowledge in all the social situations where such knowledge might play a role. I do not see how research could ever supply what is needed to resolve the question,though perhaps it might advance the level of debate somewhat. Ultimately, this is the sort of issue that is settled, if at all, by the court of public opinion.

At the present time disputants on both sides get away with gross oversimplifications. Defenders of modern Western knowledge point to science, the harder the better, as evidence for their case, while ignoring the more plausible examples used by critics -- history, anthropology, the social sciences, the arts. The few really careful comparisons of modern Western knowledge with other versions (Horton(1971) is an outstanding example) show surprisingly and refreshingly mixed results and make the issues seem much subtler and more interesting than the polemics would indicate. If research on the general efficacy of knowledge in a society is wanted, I strongly urge that it treat detailed, specific realms of knowledge in a careful, comparitive fashion, in the manner of Horton's work.

The other line of attack on prevailing conceptions of knowledge accepts the validity and importance of knowledge as understood by experts-- advanced practitioners of the various disciplines --- but questions whether what the school purveys is a fair and valid sample of this knowledge. This line of thought speaks of what is offered in schools as 'socially organized

knowledge' (Young, 1971), and treats the school curriculum as "just one of the mechanisms by through which knowledge is 'socially distributed'" (p.27). This line of thought emphasizes the hierarchical structure of knowledge and asks about the relation between this structure and the larger social structure. The charge is made that school knowledge is 'abstract, highly literate, individualistic and unrelated to non-school knowledge' (p. 38). The school is seen as "maintaing the social order through the taken for granted categories of its superordinates who process pupils and knowledge in mutually confirming way." (Keddie, 1971, p. 156) "The ability to maintain these categories as consensual, when there are among the clients in school conflicting definitions of the situation, resides in the unequal distribution of power."

The force of this argument depends on a factual question -- the similarities and differences between school knowledge and that extant among various social groups outside school -- and on a non-factual question -- the relative value of the knowledge purveyed in school and the knowledge extant elsewhere. The factual question seems not to be central to the dispute. Few would maintain that schools try to teach the language usage characteristic of their local communities, the music to be found on local radio stations, the principles of government actually operating in local jurisdictions, and the like, though some advocate they should. On the other hand, it is likely that even local citizens attach more value to school knowledge than to non-school knowledge, and the question of the objective relative worth or the two (or more) forms of competing knowledge independent of the factors in the social situation that account for the present dominance of the one is an intimidating challenge to research capabilities.

Again, I think the most profitable approach to inquiry on this question is to trace in detailed, specific, explicit ways the specific benefits of alternative competing forms of knowledge --- in this case, school and non-school forms---and leave to individual judgment the question of their relative overall value.

A final important and neglected problem inconnection with the distribution of knowledge is that of the availability of learning opportunities, especially regional and social differences in the availability of introductory learning opportunities in and out of school.

Children who grow up in more remote communities may find in science courses, say, their only 'live' contact with science. (The same could be said for art, literature, drama, mathematics, foreign languages, history, musical performance or compositions,...) It was so in the small West Virginia community where I grew up, and it is so today for many children throughout the country and more so for children in many other lands. Despite fashionable talk about the many other ways children learn out of school,and despite the reality that undoubtedly lies behind this talk in some homes and some communities, school remains the only 'live' exposure to many realms of human knowledge and endeavor for millions of children.

Large schools are able to offer a greater variety of courses than small ones. It is likely, though not proven, that schools in communities where the average level of education is higher will offer a greater variety of more advanced academic courses. Schools where per capita expenditure is higher should be able to offer a greater variety of vocational courses and laboratory courses, courses whose cost is greater than standard courses. Electives may be more 'available' to some students in a school than others.

Some electives have prerequisites; some require a teacher's recommendation; where enrolments are limited, criteria such as grade-point average or previous grade in the subject or scores on aptitude tests may be used to screen applicants. Informally, students tend to elect courses where their friends and others "like me" enroll or have enrolled. Counselor's advice may be important. Various extraneous characteristics of courses can make them attractive or unattractive to different students. For all these reasons, then, simply having a course listed among the offerings does not constitute "availability" in any realistic sense of this term. It would be of great value to know truly how available various courses and subjects are to students having various family backgrounds, ethnic affiliations, living in various neighborhoods, in rural, urban, and suburban communities of various levels of wealth, and so on.

This problem should be studied in relation to the opportunities available outside school for learning the same or similar things. It is one thing when schools offer no courses in music in a community where churches, recreation department, private individuals and community organizations sponsor musical instruction free or at an affordable cost; it is something altogether different when a school offers no music in a community that offers few other opportunities to learn it. Also, this problem should be studied in relation to the preferences and aspirations of the community. One community may be willing to forego music in favor of science, or languages, or art facilities and instruction. Or, the community may have its own ideas about the kind of music it wants its youngsters to learn. The significance of few or no school offerins in a subject depends upon the community's perceptions and attitudes toward the subject.

Whatever may be an individual's or a social group's attitude toward school knowledge as compared with other kinds available elswhere, most of us would still prefer to have school knowledge available to our children as an option, at least.

The United States and England are almost alone in the world in maintaining predominantly local control of schools. Centralized national systems of education are the rule. But even in a decentralized nonsystem such as that prevailing in the U.S., there are substantial, if unofficial, mechanisms of management, regulation, and control operating nationwide. These mechanisms function primarily in three ways: through structures built into nationwide systems of production and distribution of resources; through nationally organized attempts to influence public opinion, professional opinion, or both; and through standardized testing.

The central role of the subject curriculum in such otherwise dispersed and disparate phases of education as teacher training, textbook production, and school facility planning has already been pointed out. I might only add here that age-grading also facilitates to coordination of functions that would otherwise be logistically impossible.

I have already detailed elsewhere (Kirst and Walker, 1971) the manner in which various nationwide forces impinge upon the school and its curriculum. I have also alluded to many of the problems this direct connection between local citizens and their schools causes for the management of schools, particularly when the citizens disagree among themselves as they often do when moved to action. (Walker, 1974) I will not repeat this here, but will content myself with expressing my opinion that American education

needs a more effective apparatus for public policy-making with respect to education generally and curriculum matters particularly. It is simply not possible to run an enterprise which is subject to so many conflicting, fluctuating demands impinging directly upon those who must run it. Intermediate political mechanisms are needed that will bring the contending parties into direct confrontation and force a resolution that can then guide day-to-day operations with the continuity and unity of purpose the enterprise needs.

The consequences of this situation -- of uncertainty and conflict of priorities, of successive waves of reform impinging directly on school staffs and pressing them in contradictory directions -- are very serious, I think, for both the structure and organization of schools and for student outcomes. The inevitable spreading of energies and the confusion created by battles among interest groups for priority among the various functions can easily produce uncertainty in everybody's mind about the importance of educational goals. The uncertainty, the lack of confidence that what they are teaching is important, is debilitating to school staffs. How can we expect them to remain firm in insisting that students achieve these goals when they are surrounded with messages --- explicit and implicit --- which deny the importance of every one of the goals? How can schools maintain curricular and goal structures that engage students' energies on behalf of school goals when respected figures deny their importance? Here is another problem where research is badly needed. Frankly, I do not feel confident enough of what little I know of research on organizations to suggest what research strategies would best reveal the effects, if any, of these conditions on schools. What I do know makes me confident that the problem is not obviously beyond

the powers of present concepts and techniques to investigate.

My closing remarks will concern standardized testing as a basis for coordination and control of schooling on a state-wide or nation-wide scale. It is inadequate. As one sort of information in a much richer array, it has its uses and for these uses it is irreplaceable. But as the sole source of criticized, formal data on the outcomes of schooling, standardized testing is pitifully inadequate. Inasmuch as various trends seem to be converging toward increased centralization of control of schooling, it behooves us to work out better sources of information for this purpose. I think research designed to lead to better large-scale indicators of schooling effectiveness should have the highest priority in the NIE. Standardized achievement tests are designed

essentially to map students' performance in a subject onto a normal distribution of test scores. The normal distribution is insisted upon during test construction.

Whether standardized tests yield single scores or multiple ones, each score implies some model of the distribution of competence among the population. This is almost invariably a normal distribution. Yet for performances that can be taught, we would not expect a simple normal distribution. A bimodal distribution might result, one mode due to those who had been instructed, the other to the uninstructed. Or the distribution might be skewed toward high performance if most of the population has been effectively taught.

These characteristics designed into the standardized test do not affect its use for the purpose for which it was designed -- to compare a single

person's score to the scores of a large number of comparable individuals. Forcing a normal distribution, if it does not change person's position relative to others does not change the standardized score. But when standardized tests are used to measure the outcomes of a school program, these built-in features can make results uninterpretable. In particular, these procedures should dramatically reduce the sensitivity of the tests to instruction, since the items most sensitive to instruction will behave erratically and be eliminated from the item pool.

Standardized achievement tests have other problems. They seem to predict performance in other academic situations much better than they predict success in any out-of-school task. National Assessment reports declines in students' ability to apply knowledge to new situations, a type of item rarely found on standardized tests, simultaneously with stability in knowledge as conventionally measured. Such findings lend credence to critics' charges that the tests measure inert knowledge rather than knowledge the student has mastered and can use in unfamiliar situations.

Whatever their shortcomings, standerdized remain the measure of student achievement most credible to the public. (Even when they don't understand them. Witness the repeated calls for every senior to read at the 12th grade level). We need alternatives, not more criticisms. Criterion referenced tests have been advanced as an alternative. They avoid the problems just outlined in connection with norming, but unless the criterion set can be justified in some non-arbitrary way, their results also difficult to interpret and use. So the graders in Hoboken learned to spell 137 more words correctly by the end of the year -- is this good or bad? Should they be praised or asked to work harder next year? Should the teacher be fired or

given a raise? Are we helped to learn that the school board officially adopted a criterion of 140 words as the level of performance they would consider adequate? If only we had a theory or model of achievement or work on, we might be able to construct a measure with the formal elegance and ease of the standardzied test that was also suited to measuring the achievement consequences of instruction. This is an important task for educational research over the next decade. All research in education is limited severely by the technology of outcome measurement available to us. Inasmuch as many studies require some measure of student outcomes, this limitation severely retards researcj om nearly all subspecialties, though I do not know how high this problem should be on this specialized agenda. Also important is the development and validation of measures of outcomes for which no measures or inadequate measures are now available.

Perhaps of still greater relevance and at least equal importance is the study of the effect of various schemes of assessment of student performance on school organization and structure. Psychologists and measurement specialists have long been aware that tests affect those who use them. Cronbach (1960) points out that "administratively imposed tests not only itensify the effort in the classroom; they channel that effort" (p. 396), and notes that this effect of tests can severly restrict education "when the test covers the wrong outcomes or covers only a few of the desired outcomes". (p. 397). If tests do not have curricular validity, teaching and learning will be distorted in the direction of the content of the test. Students learn to discover what is likely to be on the test and study accordingly. Tests affect the pupil's role, the teacher's role with respect to the pupil and with respect to colleages and superiors. They may

interact with other norms and values of the classroom, as when pupils find the generalized norm of honesty in conflict with the value of acievement and are tempted to cheat, or when teachers find themselves taking onerous measures to prevent cheating and ensure 'fairness' in the test.

The effects of tests depend critically on how they and their results are used. A test whose score is reported to the pupil for his and his parents'

information does not have the same impact on the school or the child as one reported to colleges and used for determining whether the student will be admitted to study there. Presumably, we want tests to function in such a way that they further the aims we hope schooling will serve. For various reasons the ways that seem at first sight likely to further our aims, do not always do so. Recently it has been proposed to use students' test scores to judge teachers' performance, a practice intended to increase achievement by rewarding successful teachers and identifying those whose performance needs improvement. If this use of tests had this and only this effect, we would certainly be justified in adopting it immediately. But even the first steps toward such uses have revealed the many slips possible between this cup and its lip. In the first place, teachers resent being held responsible for pupils' learning when they know many other factors are also involved. They act to oppose the practice. Recognizing that teachers with good pupils in their classes are likely to look better on this criterion, teachers develop an enhanced sensitivity to the question of assignment of pupils to teachers, a development that strains teacher-administrator and teacher-teacher relationships. The proposed would have

effects not easily foreseeable on the allocation of teaching talent to pupils fo different abilities. If,as seems to happen, greatest gains are possible by concentrating attention on low-to-moderate achievers, further side effects are generated. Efforts to discover the content of the test and efforts to disguise this information can be expected. To the extent that the information is known, efforts to direct teaching to the test items, neglecting aims not testef, can be expected. To counter this, tests may lengthen. This, in turn, has consequences. And so the roung of effects radiates outward from the apparently simple practice, reflects back upon it, and produces, all too often, something other than we intended.

For this reason a careful organization analysis of the impacts of various uses of tests ought to be as standard a practice as the validation of the tests themselves. It seems logical that school-or district-or even state-wide examinations that must be passed before graduation should influence effort and achievement. How much? We don't know. Do examination requirements have different effects from other types of graduation or promotion requirements? We don't know. In fact, we don't even know if requirements of any kind improve achievement. Whether they do or not would seem to depend upon how and how well the standards are enforced, among other things. To my knowledge, we have no formal research that would show, even,whether jurisdictions with examination requirements havehigher achievement than comparable jurisdictions without them. Here, surely, is a place where a well designed field experiment with random assignment of districts willing to experiment with various types of promotion and graduation requirements would provide practical policy guidance in an area

where states are showing increasing tendencies to legislate and local districts to mandate.

Similar experiments comparing the various schemes of competency-based requirements with more conventional ones would also prove useful. A chief problem with any research in this area is to find valid indicators of the sorts of outcomes that should be investigated. Another problem in such research is to take into account the community's stance toward school, achievement, and requirements. The effectiveness of school and community attitudes, beliefs, and customs. These problems can be coped with well enough to permit research to go forward, however.

The final question I shall consider in connection with evaluation of student performance is the question of its equity. Are evaluation procedures fair to all students? Is every student, regardless of race, religion, national origin, sex, wealth,..., given an equal chance to be rewarded for his performance?

One important aspect of the equity question in assessment is reducible to a question of social equity of the curriculum. So long as knowledge is differentially distributed among groups within the society, and so long as the school sets greater store by some knowledge than others, tests of school goals will be inequitable. This could only be avoided if the school curriculum were some sort of fair distribution of the knowledge, skills and beliefs of the entire population, educated or not-an impossible, self-contradictory mess.

But this is not essentially a testing problem, even though it is a puzzling issue for educational policy.

The other important aspect of the equity question in connection with

educational evaluation is whether the tests fairly assess what the students are asked to learn in school, or whether they test only certain performances, those which give an advantage to some pupils, and in certain ways, ways which give unfair advantage. For example, many of the things taught in school could be taught with little or no use of reading and writing. They could be taught orally, by demonstration, by imitation. But if paper and pencil tests are used to assess performance and if these tools are more prevalent in some social groups than in others, such tests would be unfair. The obvious solutions to this problem are either to develop alternate versions of tests that depend as little as possible on the maldistributed skills, or to even the distribution of the skills, or both.

While tests of academic achievement typically call for students to do something more than simply recall information previously learned, they do not normally call for anything like the full range of responses we hope students will be capable of when they have "learned the subject". The gap between what students demonstrate they can do on tests and what we hope and expect they can do in 'real life' should be a serious source of concern to investigators who want to study cognitive outcomes of schooling. The National Assessment of Educational Progress recently reported that students' scores on items requiring application of knowledge had declined, although their scores on informational items had not. Tests which have currency only in the world of the school are clearly harmful to students and the larger society, and there is evidence that many of the measures used in schools have little external validity.

Finally, one of the least satisfactory responses to the possible inequities of tests is to confine testing to those matters students may be

assumed to have had an equal chance to learn. This penalizes the student who has acquired knowledge or skill nor ordinarily learned, and it enforces an inappropriate monolithic conception of what knowledge is important. Much better would be development of an array of brief measures of a wide variety of types of achievement potentially relevant to school. Individual jurisdictions could then choose from among these the ones that best represented their aims.

Conclusion

My recommendations for research on the role played by knowledge, curricula and goals in schooling processes and outcomes spring from an implicit underlying judgment about productive research strategies on schooling effects which should be made explicit. I think research based on linear causal models of the effects of schooling as a whole on large-scale features of a society is misleading and counter-productive. It is as though the contribution of rainfall to ocean were to be investigated by measuring a few simple characteristics of rainfall --- its amount, spatial and temporal distribution, and temperature, say --- and using these in a multiple regression analysis to explain ocean levels, salinity, and ocean temperature. Without underlying models of the hydrologic cycle, we cannot expect such oversimplified blind empiricism to yield interpretable results. Furthermore, we are seldom interested simply in the average overall levels of variables characterizing the ocean. We usually need to know about the tidal levels at various locations, the location and strength of currents, and spatio-tempocal distributions of water temperature and salinity. Large-scale models may have pedagogical uses. They may even have regional applicability to particular sites that can be

approximately conceived as isolated from other parts of the hydrologic system. But the part played by grand models of 'the contributions of rainfall to ocean characteristics' in applied hydrology is likely to be modest.

At various points in this paper I have opted for research strategies that seek to discover relationships between specific features of schooling and specific individual and social outcomes. By tracing these outcomes and their ramifications through specific social situations, I think it may be possible in some cases to achieve a more general understanding of certain generic processes by means of which schools influence particular subsystems within intermediate-sized social units --- communities or even regions. Eventually, we may perhaps be able to trace these effects (and the counter-effects of society on education) sufficiently to construct our own large scale model, but even then it will be useful mainly for pedagogical purposes.

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